

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method in a computer system of restricting access to memory, the method comprising:

setting a memory location to indicate a trap should occur when the memory location is accessed;

under control of an unauthorized portion of a computer program,

setting a pointer to point to the memory location_i;

setting an indication included in the pointer to indicates that traps to the pointed to memory location are enabled; and

accessing the memory location using the set pointer, wherein the access of the memory location causes~~so that~~ a trap to occurs and access to the restricted memory location is detected; and

under control of an authorized portion of a computer program,

setting a pointer to point to the memory location_i;

setting an indication included in the pointer to indicates that traps to the pointed to memory location are disabled; and

accessing the memory location using the set pointer, wherein the access of the memory location does not cause~~so that~~ a trap does not to occur and access to the restricted memory location is allowed.

2. (Original) The method of claim 1 wherein a user program typically accesses memory locations using pointers with traps enabled.

3. (Original) The method of claim 1 including setting all memory locations of a data structure to indicate a trap should occur when the memory locations are accessed.

4. (Original) The method of claim 1 wherein when the memory location is accessed, invoking a trap handler.

5. (Currently Amended) A system for restricting access to memory, the system comprising:

means for, under control of a computer program, setting a first trap indicator for a memory location to indicating-indicate that a trap should occur when ~~a~~the memory location is accessed;

means for, under control of the computer program,

setting a pointer to a memory location, the pointer containing a second trap indicator that is distinct from the first trap indicator for the memory location, wherein the second trap indicator contained in the pointer has an indication of trap handling depending on whether an unauthorized or authorized portion of the computer program is accessing the memory location;

means for accessing the memory location; and

means for handling a trap wherein propriety of the access is determined based on the indication that the trap should occur when the memory location is accessed as determined from the first trap indicator for the memory location and the indication of trap handling as determined from the second trap indicator contained in the pointer set to the memory location.

6. (Currently Amended) The system of claim 5 wherein the indication of trap handling contained in the pointer is enabled.

7. (Currently Amended) The system of claim 5 wherein the indication of trap handling contained in the pointer is disabled.

8. (Original) The method of claim 5 wherein the propriety is unauthorized.

9. (Original) The method of claim 5 wherein the propriety is authorized.

10. (Currently Amended) A computer-readable medium for restricting access to memory, comprising:

a data structure with a plurality of elements;

a pointer to an element in the data structure, the pointer having a first indication of whether a trap is enabled depending on whether an unauthorized or authorized portion of a computer program is accessing the data structure;

for each element of the data structure, a second indication of whether a trap is enabled, the second indication being distinct from the first indication; and

a handler including instructions for handling the enabled trap as determined from the first indication and the second indication.

11. (Currently Amended) The computer-readable medium of claim 10 wherein the second indication for an element is enabled.

12. (Currently Amended) The computer-readable medium of claim 10 wherein the handler is invoked when the element in the data structure is accessed through a pointer whose first indication is enabled.

13. (Currently Amended) The computer-readable medium of claim 10 wherein the handler is not invoked when the element in the data structure is accessed through a pointer whose first indication is disabled.

14. (Currently Amended) The computer-readable medium of claim 13 wherein the second indication for an element is disabled.

15. (Currently Amended) The computer-readable medium of claim 13 wherein the handler is invoked when the element in the data structure is accessed through a pointer whose first indication is enabled.

16. (Currently Amended) A system for restricting access to memory comprising:

- a component that sets a first trap indicator for a memory location to indicate a trap should occur when the memory location is accessed;
- a component that, under control of an unauthorized portion of a computer program,
 - sets a pointer to point to the memory location, the pointer including a second indicator for indicating whether traps to the pointed to memory location are enabled or disabled, the second indicator being distinct from the first indicator;
 - sets the second indicator in the pointer to indicates that traps to the pointed to memory location are enabled; and
 - accesses the memory location using the set pointer so that a trap occurs and access to the restricted memory location is detected; and
- a component that, under control of an authorized portion of a computer program,
 - sets a pointer to point to the memory location, the pointer including a second indicator for indicating whether traps to the pointed to memory location are enabled or disabled, the second indicator being distinct from the first indicator;
 - sets the second indicator in the pointer to indicates that traps to the pointed to memory location are disabled; and
 - accesses the memory location using the set pointer so that a trap does not occur and access to the restricted memory location is allowed.

17. (Currently Amended) The system of claim 16 wherein a user program typically accesses memory locations using pointers ~~with~~ having the second indicator set to indicate that traps are enabled.

18. (Currently Amended) The system of claim 16 including a component that sets all first trap indicators for memory locations of a data structure to indicate a trap should occur when the memory locations are accessed.

19. (Original) The system of claim 16 wherein when the memory location is accessed, a trap handler is invoked.